

Once Upon a Time in American Ornithology

Samuel Hearne (Fig. 1) was born in London, England, in 1745. In 1766 he joined the Hudson's Bay Company as a seaman and mate of the *Charlotte*, sailing out of Churchill on Hudson Bay, Canada. In 1771 he was the first European to reach the Arctic coast of North America, traveling on foot with a group of Chipewyan Indians from Churchill to the mouth of the Coppermine River. In 1774 he founded the first inland trading post of the Hudson's Bay Company at Cumberland House, now Saskatchewan's oldest settlement.

Ironically, only the historians appear to have appreciated what a great naturalist Hearne was. In his introduction to the 1958 reprint of Hearne's book, *A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean* (MacMillan Company, Toronto, Ontario, 1958), the editor, Richard Glover, correctly recognized that "Samuel Hearne was, of course, another first class observer and reporter . . . head and shoulders superior to every other North American naturalist who preceded Audubon."

An observer, not a collector, Hearne was the first to give a recognizable description of the Ross's Goose, named *Anser rossii* by John Cassin some 80 years later:

HORNED WAVEY. This delicate and diminutive species of the Goose is not much larger than the Mallard Duck. Its plumage is delicately white, except the quill-feathers, which are black. The bill is not more than an inch long, and at the base is studded round with little knobs about the size of peas, but more remarkably so in the males. Both the bill and feet are of the same colour with those of the Snow Goose. The species is very scarce at Churchill River, and I believe are never found at any of the Southern settlements; but about two or three hundred miles to the North West of Churchill, I have seen them in as large flocks as the Common Wavey, or Snow Goose. The flesh of this bird is exceedingly delicate, but they are so small, that when I was on my journey to the North I eat [ate] two of them one night for supper.

As the quotation above illustrates, many of Hearne's observations were practical in nature. Many species were numerous at that time. Similarly, Hearne noted that one Indian could kill twenty Spruce Grouse in a day with his bow and arrow and some would kill upwards of a hundred Snow Geese in a day,



FIG. 1. This portrait of Samuel Hearne, reproduced with permission from Stuart Houston (Houston, S., T. Ball, and M. Houston. 2003. *Eighteenth-Century Naturalists of Hudson Bay*. McGill-Queen's University Press, Montreal, Quebec), first appeared in *The European Magazine* in 1797 (original artist unknown).

whereas the most expert of the English hunters would think it a good day's work to kill thirty. At Albany Fort in one season, sixty hogsheads (i.e., 220–245 liters each) of geese were salted away for winter consumption. Hearne also mentioned that Arctic Terns, which he ranked as being among "the elegant

part of the feathered creation," occurred in flocks of hundreds; bushels of their eggs were taken on a tiny island.

Hearne once saw a flock of more than 400 Willow Ptarmigan near the Churchill River. The Indians had put framed nets on stakes and placed them over gravel bait to entice ptarmigan to gather under the net. The stake was then pulled to drop the net on top of the birds. Using this method, 3 people could catch up to 300 birds in 1 morning; in the winter of 1786, Mr. Prince at Churchill caught 204 with two separate pulls. Ptarmigan feathers made excellent beds; the feathers sold for three pence per pound. The smaller Rock Ptarmigan would not go under nets, but up to 120 could be shot in a few hours.

In Hearne's time, cranes, curlews, and Passenger Pigeons also were regularly shot for

food; the latter flew in large flocks in the interior near Cumberland House where Hearne saw 12 killed at one shot. Whooping Cranes, only occasionally seen, most often occurred in pairs. He indicated that this largest crane was good eating, and its wing bones were so long and large that they were sometimes made into flutes. Hearne was the first to recognize two different species of curlew, the Hudsonian and the Eskimo. He also provided invaluable information concerning the northern edge of the Eskimo Curlew's breeding range—Egg River, on the west coast of Hudson Bay at 59° 30' N, about 150 miles north of Churchill.

Hearne combined keen powers of observation with a deep appreciation for the natural world. His observations of the Ruffed Grouse, although precise and accurate, also convey a real sense of awe and wonder:

THE RUFFED GROUSE. This is the most beautiful of all [grouse]. . . . They always make their nests on the ground, generally at the root of a tree, and lay to the number of twelve or fourteen eggs. . . . There is something very remarkable in those birds, and I believe peculiar to themselves, which is that of clapping their wings with such a force, that at half a mile distance it resembles thunder. I have frequently heard them make that noise near Cumberland House in the month of May, but it was always before Sun-rise, and a little after Sun-set.

Hearne did not, however, restrict his attention to edible birds; he also described small birds, such as the chickadee, or the ground nest of a White-crowned Sparrow at the root of a dwarf willow or a gooseberry. He understood the concept of bird migration, describing the Trumpeter Swan as the first species of waterfowl to return each spring, sometimes as early as late March, and frequenting the open waters of falls and rapids. He also named year-round residents, such as the Willow Ptarmigan and Arctic Hare. Hearne's understanding of sexual dimorphism showed in his remark that the male Willow Ptarmigan was larger than the female. His description of the body-size range among ptarmigans demonstrates his understanding of what was later to be described as Gaussian distribution.

Hearne noted that the pouch at the base of the pelican's beak had a capacity of three quarts and that, in the 1770s as well as today, muskrat houses were favorite nesting sites for Canada Geese. He evidently was the first to dissect the "windpipe" of an adult Trumpeter Swan, noting that the convoluted trachea

passed into the broad and hollow breastbone of the swan and, after passing the length of the sternum, returned into the chest to join the lungs. He also dissected a Tundra Swan but failed to appreciate its lack of the extra perpendicular hump in the trachea that is present in the larger Trumpeter Swan.

While in England during the winter of 1782–1783, Hearne met Thomas Pennant and gave him a copy of his natural history sightings, a dozen years in advance of their posthumous publication. Pennant incorporated a number of Hearne's observations into *Arctic Zoology* (in 3 volumes, Robert Faulder, London, 1792). Five years after retiring to England in 1787, Hearne sold his manuscript, *A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean*, to a publishing firm in London (A. Strahan and T. Cadell) for the unprecedented sum of £200. Only a month later, when only 47 years old, Hearne died "of the dropsy." His book, one of the greatest travel narratives ever written, appeared in print posthumously in 1795.

From my point of view, Hearne's account

of the large subspecies of Canada Goose (*Branta canadensis maxima*) best reveals his scientific bent. He met these very large geese on the Barren Grounds, but he did not call them Barren Geese because they summered there; rather, he named them after dissecting them and discovering an “exceeding smallness of their testicles.” Hearne’s observation of the unusually large race of geese with small testicles was confirmed more than a century and a half later in Harold C. Hanson’s book, *The Giant Canada Goose* (Southern Illinois

University Press, Carbondale, 1965). The book detailed how, in the 1960s, Giant Canada Geese were captured and banded as flightless young in Rochester, Minnesota, southern Manitoba, and southern Saskatchewan, after which they traveled north 1,600 km to molt (thus arriving later in the year than the breeding individuals). Because the geese were too young to breed, they had small testicles. This confirmed the phenomenon that Samuel Hearne, truly one of the most talented of the early North American naturalists, noted with such insight:

BARREN GEESE. These are the largest of all the species of Geese that frequent Hudson’s Bay, as they frequently weigh sixteen or seventeen pounds. They differ from the Common Grey Goose in nothing but size, and in the head and breast being tinged with a rusty brown. They never make their appearance in the Spring till the greatest part of the other species of Geese are flown Northward to breed, and many of them remain near Churchill River the whole summer. This large species are generally found to be male, and from the *exceeding smallness of their testicles*, they are, I suppose, incapable of propagating their species.

The original reference for this piece is S. Hearne, 1795, *A Journey from Prince of Wales’s Fort in Hudson’s Bay to the Northern Ocean*, A. Strahan and T. Cadell, London. The modern reference is S. Houston, T. Ball, and M.

Houston, 2003, *Eighteenth-Century Naturalists of Hudson Bay*, McGill-Queen’s University Press, Montreal, Quebec.—C. STUART HOUSTON; e-mail: houstons@duke.usask.ca